

Claims

- [c1] Unknown;GraceTu;What is claimed is:
- 1.A method of correcting a mask layout, the mask layout comprising a plurality of line patterns, the method comprising:
- providing line width deviation data of transferred line patterns;
- executing an inspection program to classify the line patterns of the mask layout into at least a first-type line pattern and a second-type line pattern according to the line width deviation dataa pattern density of the line patterns; and
- making a line width correction of a first constant value on the first-type line pattern and making a line width correction of a second constant value on the second-type line pattern;
- wherein the first constant value is determined by the line width deviation data of the first-type line pattern, and the second constant value is determined by the line width deviation data of the second-type line pattern.
- [c2] 2.The method of claim 1 wherein a pattern density of the first-type line pattern is different from a pattern density of the second-type line pattern.
- [c3] 3.The method of claim 2 wherein the pattern density is determined by a distance between two adjacent line patterns.
- [c4] 4.The method of claim 1 wherein the line width deviation is a result of a systematic error.
- [c5] 5.The method of claim 1 wherein the line width deviation is a result of a micro-loading effect.
- [c6] 6.The method of claim 1 wherein the line width deviation comprises a deviation of an after-etch-inspection critical dimension (AEI CD).
- [c7] 7.The method of claim 1 wherein the first-type line pattern comprises dense patterns or semi-dense patterns, and the second-type line pattern comprises isolated patterns.
- [c8] 8.The method of claim 1 wherein the first-type line pattern comprises isolated patterns or semi-isolated patterns, and the second-type line pattern comprises

dense patterns.

- [c9] 9.The method of claim 1 wherein the line width correction of the first constant value and the line width correction of the second constant value comprise increasing line widths of the line patterns or decreasing the line widths of the line patterns.
- [c10] 10.The method of claim 1-wherein each of the line patterns is used for defining a conductive area.
- [c11] 1.A method of correcting a mask layout, the mask layout comprising a plurality of element patterns, the method comprising:
providing pattern deviation data of transferred element patterns;
executing an inspection program to classify the element patterns of the mask layout into at least a first-type element pattern and a second-type element pattern according to a pattern density of the element patterns; and
making a selective correction on the first-type element pattern and the second-type element pattern, respectively;
wherein the selective correction determines a correction value on the first-type element pattern and on the second-type element pattern according to the pattern deviation data of the first-type element pattern and of the second-type element pattern, respectively.
- [c12] 1.The method of claim 10 wherein the element patterns comprise line patterns.
- [c13] 1.The method of claim 11 wherein the pattern density is determined by a distance between two adjacent line patterns.
- [c14] 1.The method of claim 11 wherein the selective correction comprises increasing line widths of the line patterns or decreasing the line widths of the line patterns.
- [c15] 1.The method of claim 10 wherein the pattern deviation is a result of a systematic error.
- [c16] 1.The method of claim 10 wherein the pattern deviation is a result of a micro-loading effect.

- [c17] 1.The method of claim 10 wherein the pattern deviation comprises a deviation of an after-etch-inspection critical dimension (AEI CD).
- [c18] 1.The method of claim 10 wherein the first-type element pattern comprises dense patterns or semi-dense patterns, and the second-type element pattern comprises isolated patterns.
- [c19] 1.The method of claim 10 wherein the first-type element pattern comprises isolated patterns or semi-isolated patterns, and the second-type element pattern comprises dense patterns.
- [c20] 1.The method of claim 10 wherein each of the element patterns is used to define a conductive area.
- [c21] 11.A method of correcting a systematic error produced during a pattern transfer process on a mask layout, the mask layout comprising a plurality of element patterns, the method comprising:
executing an inspection program to classify the element patterns of the mask layout into a plurality of element pattern types according to a pattern density of the element patterns; and
correcting each of the element pattern types.
- [c22] 12.The method of claim 1120 wherein the element patterns comprise line patterns.
- [c23] 13.The method of claim 1221 wherein while correcting each of the element pattern types, the method comprises increasing line widths of the line patterns or decreasing the line widths of the line patterns.
- [c24] 14.The method of claim 1221 wherein the pattern density is determined by a distance between two adjacent line patterns.
- [c25] 15.The method of claim 1423 wherein the element patterns comprise at least a dense pattern, a semi-dense pattern and an isolated pattern.
- [c26] 16.The method of claim 1120 wherein the pattern density is determined by an electrical circuit design.

- [c27] 17.The method of claim 1625 wherein the element patterns comprise at least an element pattern in a memory cell region and an element pattern in a logic circuit region.
- [c28] 18.The method of claim 1120 wherein while correcting each of the element pattern types, the elements patterns of the same element pattern type have the same correction value.
- [c29] 19.The method of claim 1120 wherein the systematic error comprises a micro-loading effect.

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